

Original Article

Dental Pain Perception in Different Genders: Psychological Evaluation and Pain Control Strategy

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ABSTRACT:

Aim: This study aims at evaluation and discussion of differences in pain perception, anxiety and behaviour of male and female dental patients and highlight its significance in treatment planning and management, in the clinical set in Bihar. **Material and methods:** A comparative cohort study was carried out in 440 patients from various dental clinic in Bihar. They were given a 23-question questionnaire based on extended DFAS(dental fear and avoidance scale) and DAS(dental anxiety scale).The variables included brief demographic data, medical history, psychological assessment, pain catastrophe, previous dental experiences and avoidance of dental treatment. Descriptive statistics were used to describe the categorized study and outcome variables in male and female patients and comparing the differences in psychology and pain perception. **Results and conclusion:** Female subjects reported with less pain and phobia for dental treatment compared to male subjects. 91.6% females responded positively for DFAS-1 score(not afraid) against 45.8% of male subjects and 50.6%male subjects agreed that they are terrified of dental pain against 25.7% female subjects for DFAS score 4(terrified of dental pain),which is statistically highly significant.

Key words: Dental phobia, Pain, Behaviour, Pain Catastrophe, Anxiety, Dental treatment

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INTRODUCTION

Pain is defined as “An unpleasant emotional experience caused by noxious stimuli, carried by the complex neuronal network to the higher levels of central nervous system where it is interpreted as such¹. Pain has been a complex subject for neurosurgeons, anatomists, researchers, dentists and they find it more fascinating to deal with it. Patients most often associate anxiety with dental pain. Highly anxious patients feel more pain during dental treatment². Alleviating pain and anxiety before starting actual dental treatment is an integral part of successful dental practice. Dental students or practitioners must not only master the injection techniques, but also develop the skills to assess patient’s pain and psychological problems related to prior patient care in all the disciplines of dentistry. The level of anxiety, co-operation, age, medical condition must be assessed before starting the treatment. This helps in building up rapport between the dentist and patient and eventually making dental treatment more comfortable. Few guidelines have been put forth by ADA(American dental association) to recognize pain and anxiety and manage them through

psychological and pharmacological modalities. ADA defined anxiety and pain control as the application of various physical, chemical and psychological modalities to the prevention and treatment of preoperative, operative and postoperative patient anxiety and pain to allow dental treatment in a safe and effective manner. It involves all disciplines of dentistry and, as such, is one of the most important aspects of dental education. Psychological strategies should include simple relaxation techniques for the anxious patient and more comprehensive behavioural techniques to control pain. Pharmacological strategies should include not only local anaesthetics but also sedatives and other useful agents³.

MATERIAL AND METHODS

A self-administered 23 questions- questionnaire was distributed among 440 patients undergoing treatment in a dental college in Bihar.

Inclusion criteria: 220 0 male and 220 female patients An extended DFAS(dental fear and avoidance) scale and DAS(dental anxiety scale)questionnaire was focused on a brief demographic data, medical history, psychological

evaluation, previous dental experiences, pain catastrophe, anxiety and phobia of dental treatment.

Exclusion criteria: Subjects on medication for psychological problems and highly anxious patients.

STATISTICAL ANALYSIS

Data were analyzed using Epi Info software. Descriptive statistics (frequencies and percentages) were used to describe the categorical study and outcome variables. Pearson’s chi-square test was used to compare the responses of categorical variables, between male and female study subjects. A p-value of <0.05 was used to report the statistical significance of the results.

Occurrence of pain during dental treatment and frequency of dental visits (Table 1)

There is highly statistically significant difference in the responses of male and female study subjects in relation to their feelings of pain for the dental treatment of “restoration”, “orthodontics”, “surgical extractions”, and “implants”.19.2% male subjects expressed that they felt pain during restorative procedures compared with 7.7% of female subjects which is statistically significant ($\chi^2 = 24.38, p<0.0001$). 40.4% of male subjects felt pain during orthodontic procedures as compared to 31.8% of female subjects which is statistically significant ($\chi^2 = 5.77, p=0.016$). During surgical-extractions,49.3% male subjects had expressed pain when compared to 40.5% of female subjects.

RESULTS

Table 1 : Comparison of occurrence of pain during different treatment procedures between male and female study subjects

Study Variable	Males(n=220)	Females(n=220)	x 2-value	p-value
Do you feel pain in the following dental treatment?				
Restoration	39(19.2)	17(7.7)	24.38	<0.0001
Endodontic	115(56.8)	114(52)	1.89	0.169
Orthodontic	61(40.4)	70(31.8)	5.77	0.016
Extraction	102(49.3)	89(40.5)	6.69	0.010
Periodontics	69(33.3)	74(33.6)	0.009	0.925
Prosthodontics	58(30.5)	74(33.6)	0.913	0.339
Implants	27(13.9)	14(6.1)	13.70	<0.0001

Misconceptions or myths heard from friends or others (Table 2)

The responses to the statement, “ Blindness following dental extraction”, were expressed positively, as “heard from a friend and believed “by 16.6% of male subjects, and 5.7% of female subjects which is statistically significant ($\chi^2 = 26.46, p<0.0001$) and as “ it’s a misconception” by 77.7% male subjects and 89.8% female subjects which is highly statistically significant ($\chi^2 = 23.45, p<0.0001$)

Table 2 : Comparison of male and female subjects believing in Misconceptions

Blindness following dental extraction	Male(n=440)	Female(n=440)	X2-value	p-value
Blindness following dental extraction	73(16.6)	25(5.7)	26.46	<0.0001
Blindness following dental extraction	5(1.1)	8(1.8)	0.703	0.402

Phobia for dental instruments (needles, drills,reamers, files or any untoward complications) (Table 3)

Towards phobia of dental instruments, 13.4% of male subjects had responded positively when compared with 5.7% of female subjects which is statistically significant ($\chi^2 = 15.21, p<0.0001$).

Table 3: Comparison of male and female subjects expressing fear for dental instruments

Study variables	Male(n=440)	Female(n=440)	x2-value	p-value
Are you scared of:	157(35.7)	115(26.1)	169(38.4)	93(21.1)
Injecting needle, dental drills, reamers, files (Yes)				
Complication following any dental procedure(Yes)	0.702	3.047	0.402	0.081

Perceptions of pain during dental treatment (Table 4)

In relation to statement of perception towards pain, there is statistically high significant difference in the responses of male and female subjects for the “terrified”(DFAS-4), in which 50.6% of male subjects had responded positively when compared with 25.7% of female subjects, for the statement, ‘ very afraid”(DFAS-3), 60.9% of male subjects had responded positively when compared with 46.1% of female subjects, for the statement ‘ little afraid”(DFAS-2) after local anaesthesia injection, 45.8% of male subjects had responded positively when compared with 96.1% of female

subjects. All these responses are statistically significantly different between male and female subjects. However, there was no statistically significant difference between male and female subjects for the responses of the statement, absolutely not afraid during dental treatment”(DFAS-1)

Table 4: Comparison of perception of pain during dental treatment between male and female subjects

Study variables	Males=440	Females=440	x2 value	p value
What is your perception on pain?				
DFAS-4 terrified (n=431;440)(Yes)	218(50.6)	113(25.7)	57.288	<0.0001
DFAS-3 very afraid(n=430;440) (yes)	262(60.9)	203(46.1)	19.129	<0.0001
DFAS-2 little afraid(n=425;440)(Yes)	53(12.5)	49(11.1)	0.370	0.543
DFAS-1)I can tolerate pain or absolutely not afraid during dental procedures (n=426;440)(yes)	195(45.8)	129(29.3)	25.033	<0.0001

DISCUSSION

Pain is a subjective experience and has significant effects on behaviour, emotions, activity output and may lead to avoidance of dental treatment. Dental pain is influenced by psychological, psychogenic and psychosomatic factors ⁴. Since pain is a subjective factor, it cannot be measured, but only observed and assessed using various pain scales ². Irrespective of any gender, all humans have the same anatomical structures to convey nociception to CNS. Several factors unconsciously influence the intensity with which the pain is perceived. There are many studies supporting male and female pain perception differences ⁴ and it is noteworthy that women tolerate pain better than men of same cultural and ethnic background. Pain perception in women is influenced by several sex hormones, high pain threshold and experiences during puberty and childbirth ⁶,but women experience pain exacerbation during menstrual cycle due to decreased pain threshold although the pain threshold remains the same in men and women during low progesterone and high estradiol levels⁷. According to integrative model put forth by DM niddam et al, pain experience is influenced or shaped by both situational factors and trait factors and stressful dental settings exacerbates pain experience ⁸. Situational factors are the factors specific to content regarding dental pain and its treatment such as uncontrollability or dangerousness ⁹.Trait factors have the influence of personality factors, such as dental anxiety, depression or neuroticism on the worst pain experience in dental sitting. According to Arntz et al., anxious people have the tendency to overestimate the anticipated pain ¹⁰. A normal healthy person feels pain himself on empathizing another person’s pain.This may be due to neuronal changes and sensitization of our own pain pathway while empathizing other person’s pain ¹¹. Thus alleviating pain and anxiety, irrespective of gender is a crucial step before starting any dental procedure. But understanding differences in pain perception by different genders or individual differences in pain perception helps doctors lay out a different treatment plan and manage the subjects accordingly. This can be done by diverting patients’ attention by playing music, cartoons or comedy movies or by using pleasant odours.

Limitations: Men are less comfortable in reporting pain than female patients.

CONCLUSION

The findings in this study showed that female subjects responded positively towards dental pain perception compared to male counterparts. The outcome of this study may be helpful in laying down a different treatment plan and management strategy individually depending on patients dental pain perception differences. Giving time and listening to patients calmly, understanding their emotions and behaviour can help in reducing stress and gaining patient’s confidence and change catastrophic thinking about the dental pain and help patient cope with stress and pain during dental treatment.

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